

1-1-2005

## Understanding barriers to leisure travel - tourist fears as a marketing basis

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### Abstract

The usefulness of investigating fears tourists associate with leisure travel as basis for strategic and operational marketing is investigated. Tourism-related fears are elicited from the tourism marketplace to gain insight into the precise risks today's tourists perceive and heterogeneity of respondents with regard to these risk perceptions are investigated in the context of domestic and overseas travel. Distinctly different patterns of perceived risks emerge for different destination contexts as well as subsegments of tourists. This knowledge could form a good basis for optimising marketing communication messages to address tourists' concerns more effectively.

### Keywords

perceived risk, tourist fears, overseas and domestic travel, market segmentation, terrorism, contagious diseases

### Disciplines

Business | Social and Behavioral Sciences

### Publication Details

This article was originally published as: Dolnicar, S, Understanding barriers to leisure travel - tourist fears as marketing basis, *Journal of Vacation Marketing*, 2005, 11(3), 197-208. Copyright Sage Publications Ltd 2005.

UNDERSTANDING BARRIERS TO LEISURE TRAVEL  
– TOURIST FEARS AS MARKETING BASIS

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**Acknowledgement**

This research project was funded through the New Partnership Grant Scheme at the University of Wollongong. Sincere thanks to my industry partners for their genuine research enthusiasm and Tracey Dickson and Katie Lazarevski who were involved in the project as research assistants as well as all students involved in the fieldwork and Kye Ling Gan, Geoffrey Chard and Andrew Smith for supporting them.

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**Abstract**

The usefulness of investigating fears tourists associate with leisure travel as basis for strategic and operational marketing is investigated. Tourism-related fears are elicited from the tourism marketplace to gain insight into the precise risks today's tourists perceive and heterogeneity of respondents with regard to these risk perceptions are investigated in the context of domestic and overseas travel. Distinctly different patterns of perceived risks emerge for different destination contexts as well as subsegments of tourists. This knowledge could form a good basis for optimising marketing communication messages to address tourists' concerns more effectively.

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## Introduction

Having first been introduced by Bauer<sup>1</sup> in 1960 the concept of perceived risk in the context of consumer behaviour is not new. Neither is it a construct that is specific to tourism. The body of academic literature in this area is very extensive, investigating a wide variety of different angles from the development of measurement tools which was first studied by Cunningham in 1967<sup>2</sup> to empirical investigations in specific settings<sup>3,4</sup>. Also, a number of typologies of perceived risks have been introduced the past decades. One of the first one by Bettman<sup>5</sup> who distinguishes between handled risk and intrinsic risk, where the latter arouses from the product class and cannot be managed by information search and risk reduction techniques in the process of consumer decision-making. Bettman's typology is still widely referred to in perceived risk studies to date.

Within the area of tourism, a number of studies have investigated perceived risk and its role in travel-related consumer behaviour. They can be categorized along two dimensions: investigations of perceived risks that have negative connotations and sensation seeking behaviour which is essentially positive risk that is actively sought. Within the groups of negative perceived risks literature can be split into general studies which aim at including a wide variety of risks and specific studies, investigating one kind of risk in great detail.

Major contributions in the area of general studies of negatively perceived risk were made by Sonmez and Graefe<sup>6</sup> and Roehl and Fesenmaier<sup>7</sup>. Roehl and Fesenmaier were the first to investigate data-driven market segments on the basis of perceived fear levels of respondents. They base their study on seven risk categories, which have emerged from consumer behaviour research: equipment risk, financial risk, physical risk, psychological risk, satisfaction risk, social risk, time risk. They use one item for each one of these risk areas and exclude social risk from the segmentation analysis to increase the coefficient alpha<sup>8</sup> of their risk scale. Based on the loadings of the remaining risks to three underlying factors, three market segments are derived which they refer to as place risk group, functional risk group and risk neutral group and show that these segments are associated with differences in travel behaviour. Roehl and Fesenmaier's article represents the first market segmentation study using such concerns as segmentation base. However, the items used are fairly broad as they have been selected to each represent one risk category postulated in prior studies on perceived risk and the segmentation is not based on the actual risk space, but a factor analytic transformation thereof<sup>9</sup> which might limit the possibility of direct managerial implementation of findings. Sonmez and Graefe demonstrate empirically - using the Roehl & Fesenmaier items as well as terrorism, health and political instability - that there is an association between the intention to travel to certain destinations or to avoid them with past travel behaviour, perceived risks and perceived safety where the dependent variable was a behavioural intention measure.

Specific studies investigating negatively perceived risks include the following: Cossens and Gin<sup>10</sup> investigated the effect of perceived risk of HIV infection on destination choice finding that it caused significant concern in countries with high HIV rates, which were highly dependant on tourism income. Similarly, Demos<sup>11</sup> claims a relationship of the increasing crime rate in Washington D.C. and the decrease of inbound tourists. While the statistical relationship could be a result of intervening variables, some of the interviews with tour operators reveal clear risk related withdrawal from the destination. Pinhey and Iverson<sup>12</sup> confirm Demos's findings in the context of Japanese travellers revealing a number of socio-demographic variables to be associated with levels of perceived risk. In particular, younger, better educated and higher earning Japanese with higher confidence levels and communication skills were less prone to alter plans due to perceived fears. A number of articles discuss the interrelation of terrorism and tourism<sup>13,14,15,16</sup>.

Research work in the area of

adventure tourism<sup>17,18,19,20,21,22,23</sup> falls into the

category of positively perceived and actively sought risk. Generally, the perception of risk are here contrasted with the tourists competence or investigated from a thrill-seeking perspective or the optimal level of positive risk / thrill is sought to be determined. Zuckerman's<sup>24</sup> sensations seeking scale remains the operational foundation of this stream of research who in 1983<sup>25</sup> also reviewed a broad number of applications on the sensation seeking scale to various adventure sports. Cheron and Ritchie<sup>26</sup> investigate the perceptions of risk in direct association with specific leisure activities and found significant differences between activities. Furthermore, two underlying risk components are revealed: psychosocial risk and functional risk. Familiarity with and interest in the activities investigated is found to be negatively correlated with risk. Bouter et al.<sup>27</sup> investigate the hypothesis that downhill skiers with a higher thrill and sensation seeking score would have higher injury rates. The opposite seems to be the case, indicating that possibly thrill seekers are more experienced in dealing with risk. Sensation seeking of adventure tourists was also investigated by Cronin<sup>28</sup> resulting in the finding that mountain climbers scored higher on the sensation seeking scale. Ewert<sup>29</sup> found risk taking to be a motivating variable for high-altitude mountaineering with motivation patterns differing in dependence of the mountaineers' experience levels. Galloway and Lopez<sup>30</sup> found empirical associations between results of respondents on a sensation seeking scale and their attitudes towards national parks, which bears significant potential for improved marketing messages. Similarly, Gilchrist et al.<sup>31</sup> determined significant differences between the sensation seeking scores of adventure travellers and non-adventure travellers. Rowland, Franken and Harrison<sup>32</sup> found strong empirical evidence for the association of risk and sensation seeking with travel behaviour and the choice of leisure activities. Finding supported by Pizam et al.<sup>33,34</sup>.

To sum up, perceived risk research has been of ongoing interest to tourism researchers since the eighties. Contributions can be classified roughly as investigating either positive risk like sensation seeking and thrill or perceived risks to be avoided. Within the latter group of studies the majority focus on particular forms of risk in greater detail whereas a number of studies investigate the general concept of perceived risk in tourism using fairly broad categories of risks in their designs. Research focusing on very concrete risk factors, on the other hand, is typically not based on individual level data, thus limiting generalisability of findings beyond the particular case discussed.

The present study represents a first step towards filling these gaps. The aims of this study are to gain understanding of the nature of concrete fears tourists perceive under the global market conditions in 2004 and to investigate the possible existence and nature of fear segments.

## **Methodology**

Two data sources were used. An exploratory study into tourist fears conducted for an Australian tour operator, provided open-ended answers to questions regarding the fears tourists perceived in the context of travelling and booking a vacation. This data was collected using short surveys in the tour operator's outlets across Australia. Each respondent was only asked one question that was worded as follows: "When deciding on how to spend the next holiday, which aspects of this decision do you perceive as risky? What are you concerned about? Please write down all the concerns / worries / fears that come to your mind:". As this was an exploratory study and the aim was merely to generate the broadest possible insight into fears potential tourists could perceive, no socio-demographic or travel behaviour questions were asked. The limitations of this data set are twofold. First, tourists who do not approach tour operators for either booking their trip or seeking information are not included, thus biasing the sample regarding booking behaviour. Second, respondents were asked about their general fears at the point of time when they were questioned. Clearly risks would change in time and with major external events happening. This dimension is not captured in the responses.

The second data set was collected from a student sample with the aim of understanding young travellers concerns with regard to travelling. After an exploratory phase with a convenience sample of students that aimed at collecting all fears perceived by students using projective techniques, intercept interviews were conducted in all faculties of the university. A usable sample size of 373 was collected. The questionnaire contained open-ended questions on perceived risks that were worded in the following way: When deciding on how to spend the next vacation, which aspects of this decision do you perceive as risky? What are you concerned about? This question was asked both in the context of domestic and overseas travel. In addition they were asked the following question: “Can you imagine that one single risk factor would actually prevent you from taking a vacation? If so, which one?” Furthermore, a list of risks was included in the questionnaire including the following statements: I might get bad value for money, People might have a bad opinion of me, The vacation might not reflect my personality, I might travel to exotic and unusual places, I might feel socially uncomfortable, I might injure myself, It might be a waste of time, I might get sick, My trip might cause environmental damage, There might be a lot of insecurity involved, The weather might be bad, The vacation might not be satisfying, The natural environment might be hostile, I might be a victim of terrorism, I might be exposed to the risk of contagious diseases, I might undertake thrilling activities, I might not have had a great time. Students were asked to evaluate these risks on a percentage scale for four different situations (overseas travel, domestic travel, adventure travel and cultural travel). The percentage scale was chosen in order to derive metric level data for the analysis stage of the study. Finally, travel related behavioural questions and questions about media behaviour and socio demographics were included. Clearly this student sample – while informative in an exploratory sense for the general tourist population - does not permit generalizations beyond the population of student tourists. Also, the potentially changing perceived risks were not captured in this survey. However, in this case, two different contexts were included, the underlying assumption being that the destination would influence the set of risks perceived.

Analysis of the data sets included the categorisation of open ended questions and descriptive statistics on the determined categories for both data sets.

Fear segments were constructed in two stages. First, the number of risk items (originally 17 in the questionnaire) had to be reduced because 373 respondents are not sufficient to detect patterns in a 17-dimensional space<sup>35</sup>. Reduction of variables, however, should not lead to a transformation of the nature of space in which patterns are investigated. Therefore conducting factor analysis and using factor scores for the partitioning task is not a viable solution<sup>36,37,38</sup>. Instead, factor analysis was conducted to determine which items load on different factors. The highest loading variables (> 0.8) on these factors were selected. This procedure assures (1) that segments are still searched for in the original data space and can thus be interpreted using the original variables names and (2) the number of items is limited to assure data dimensionality is low enough to enable pattern detection while (3) still including items from all factors.

Topology representing networks<sup>39</sup> were chosen among the clustering algorithms because they outperformed other algorithms including the most frequently<sup>40</sup> used k-means algorithm<sup>41</sup> in extensive Monte Carlo simulations with artificial data sets<sup>42</sup>. Topology representing networks can be classified as self-organising neural networks. They essentially learn to best possibly represent the empirical data presented to them given the number of clusters (prototypes) chosen by the researcher. This is done in an iterative process, whereby each respondent is presented to the network one by one. Each respondent's distance to all prototypes is computed and the respondent is assigned to the one prototype that best represents his or her answer pattern. Once the assignment has taken place, the prototype values are slightly adapted to better represent the new member. In addition, and this leads to the

topological feature of the final results, the neighbouring prototypes also slightly modify their values. That way the neighbourhood relations between prototypes are constantly adapted during the training process of the network allowing the interpretation that close prototypes are more similar to each other than distant ones. The training process can be repeated until only small changes are made or by a predefined number of iterations. Once the training has finished, all respondents are presented to the network one more time. This time only distance computations and membership assignments take place, no more value changes of prototypes. This last cycle generates the final grouping of respondents into segments. Euclidean distance measures are underlying all the distance computation. The number of clusters problem<sup>43,44,45,46</sup> is addressed in the case of TRNs by computing 50 repetitions of each number of clusters. The most stable number of clusters is chosen, where stability is measured as repeated assignment of pairs of respondents to the same segment<sup>47</sup>.

Finally, after selection of variables and partitioning of the data is completed, post-segmentation analyses are conducted. For this purpose, Chi-square test are used in the case of nominally or ordinaly scaled variables.

TRN computations are made with TRN32 software available at [www.tourism.wu-wien.ac.at](http://www.tourism.wu-wien.ac.at), all other analysis are conducted using SPSS in its 12.0.1 version.

## **Results**

### *Risk factors reported in open-ended questions*

Customers who completed the surveys at one of the tour operator's outlets in Australia stated risks that can be classified into one of the following categories:

- (1) political risk: for instance, terrorism, political instability, war / military conflict
- (2) environmental risk: for instance natural disasters, landslides
- (3) health risk: for instance, lack of access to health care, life threatening diseases, lack of access to clean food and water
- (4) planning risk: for instance, unreliable airline, inexperienced operator, not assured flight home
- (5) property risk: for instance, theft, loss of luggage

The student sample revealed not only general categories, but also made it possible to distinguish between concerns young travellers have with respect to either domestic or overseas travel. Figure 1 illustrates the general pattern (black bars) of perceived risks as well as the deviations from domestic travel related and overseas travel related concerns. As can be seen, some aspect of safety is mentioned by 42 percent of the respondents when asked about general concerns they had. Safety is clearly perceived as a risky aspect much more frequently in the context of overseas travel than it is when domestic travel is planned in which case only 9 percent of the respondents mention this concern. The same applies to health concerns. While every fifth respondent mentions this in the overseas travel context, only 6 percent are worried about their well being when travelling within Australia. Air travel, cultural risks and the fear of losing property are also identified as overseas travel related concerns.



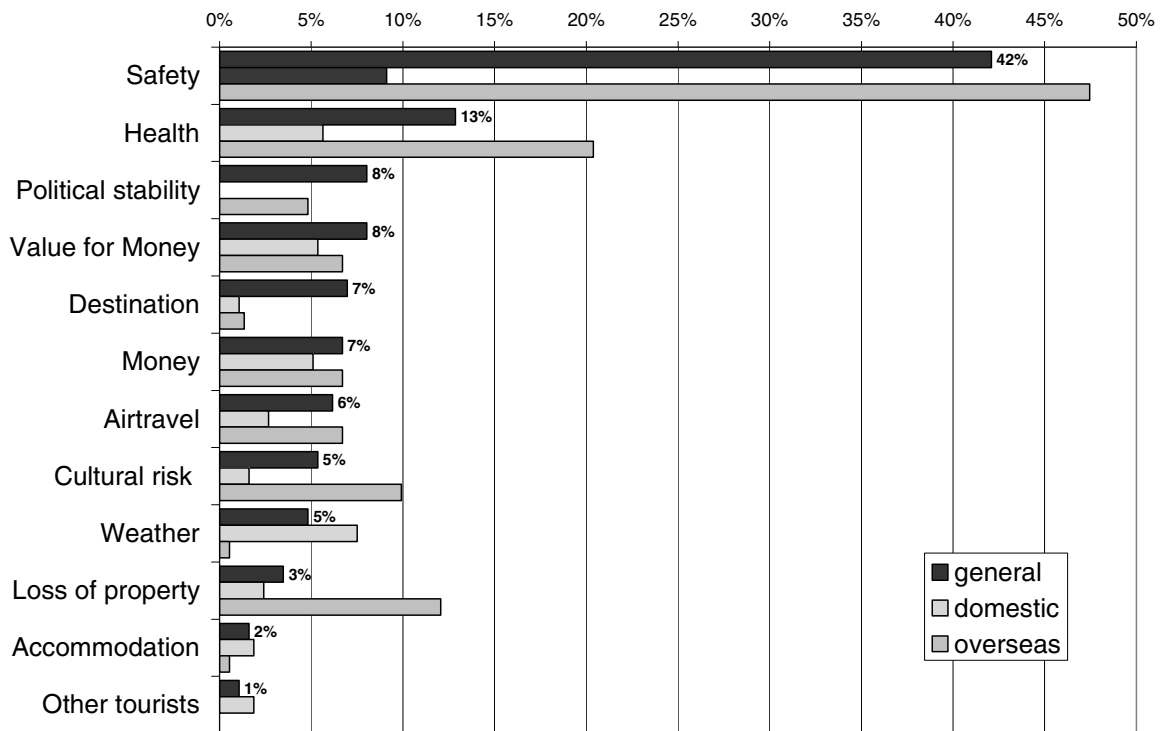


Figure 1: Categories of fear emerging from open ended questions

A few specific kinds of perceived risk that were mentioned in these broad categories are worth emphasizing. For instance, the high level of concern with wildlife as well as the condition of roads in relation to domestic travel, which is not reflected at all in the statements made with respect to overseas travel. Theft, on the other hand is almost exclusively associated with overseas travel as is the loss of valuables, danger of diseases, war and terrorism.

In addition to the open-ended question regarding the risks young travellers would associate with four different travel contexts, they were also asked if they believe that there is a single risk factor, which would actually prevent them from taking a trip. 107 of the 173 respondents stated that this would indeed be the case. The answers to this question can be categorised very clearly into 6 groups with almost identical wordings the respondents chose despite the fact that the question was also open ended. The following concerns emerged most frequently as the single factor that would suffice to prevent them from travelling: terrorism (46 percent of the 107 respondents), war (18 percent), general health risks (13 percent), contagious diseases in specific (11 percent), value for money (8 percent) and safety in general (4 percent).

*Frequency distribution of stated perceived risk factors*

The respondents in the student sample were asked to state the probability of a list of events occurring in the context of overseas, domestic, adventure and cultural tourism on a percentage scale. The event perceived as most likely are found to vary across contexts. In the case of overseas travel the exposure to contagious diseases is evaluated as highest at 56 percent, while undertaking thrilling activities is judged as being most likely on average in the context of domestic travel. Bad weather is of greatest concern when thinking about an adventure travel and bad value for money is assigned the highest probability for cultural trips. The perceived occurrence levels of the events, which are associated with negative risk (all items except ‘travel to exotic and unusual places’ and

‘undertaking thrilling activities’), also vary across contexts with domestic travel being perceived as less risky. When occurrence percentages are averaged across all contexts, the fear to get value for money dominates the ranking, followed by bad weather. Fear of contagious diseases and terrorism rank seventh and eight on the list.

The difference across contexts is illustrated graphically in Figure 2. Two insights can be gained from this illustration. Firstly, overseas travel and domestic travel represent the two extreme contexts for most of the variables (Only two variables - probability of injury and probability of undertaking thrilling activities - deviate from this rule). Overseas travel is generally associated with higher risk levels. Secondly, there seem to be events, which are evaluated very differently across contexts, but there also seem to be events, which are assigned almost identical probabilities of occurrence. The first group of events includes the following items: exposure to contagious diseases, terrorism, bad value for money, getting sick, feeling socially uncomfortable and expecting a lot of insecurity. The latter group includes items such as The vacation might not reflect my personality, The vacation might not be satisfying, My trip might cause environmental damage, I might not have a great time, and It might be a waste of time.

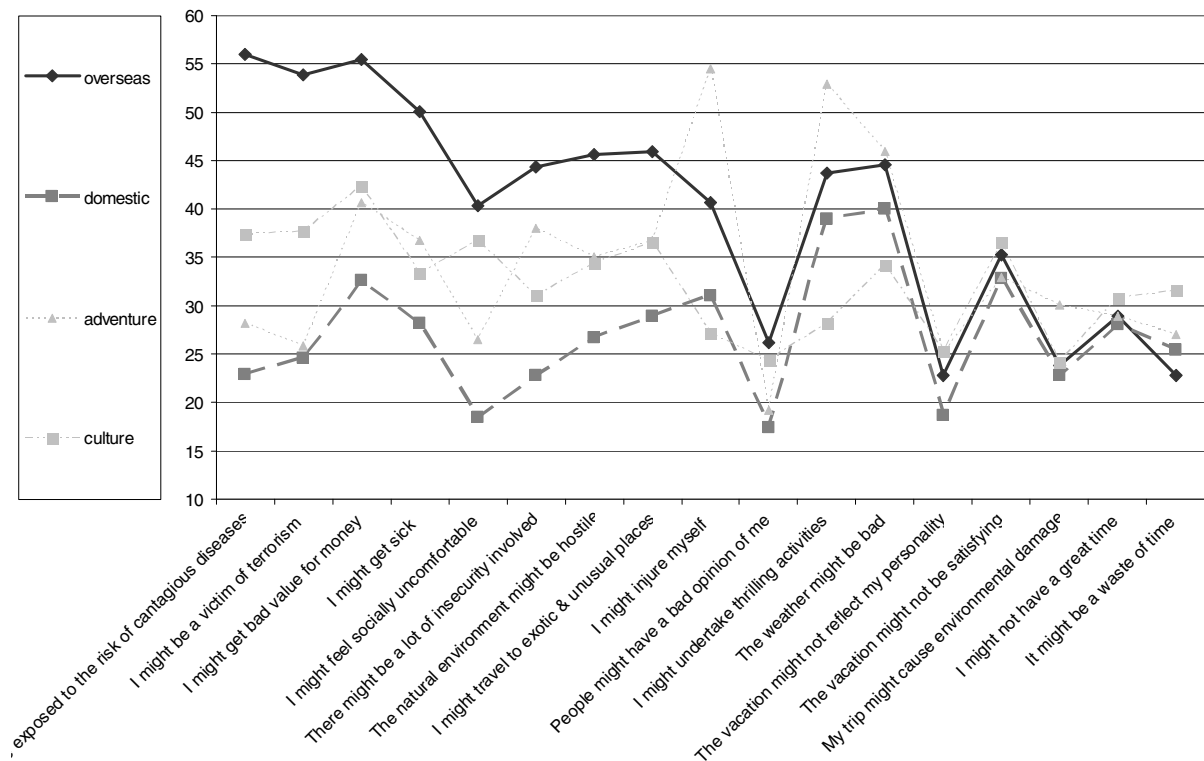


Figure 2: Gap in the perception of risky events across contexts

### Fear segments

Given the small sample available and the high sample requirements for data-driven market segmentation<sup>36</sup> the following 9 representative items for different risk categories are selected to investigate the usefulness of a posteriori segments (see details on the selection procedure in the methodology section): I might be a victim of terrorism, I might be exposed to the risk of contagious diseases, The vacation might not be satisfying, I might not have a great time, People might have a bad

opinion of me, I might feel socially uncomfortable, I might undertake thrilling activities, I might travel to exotic & unusual places, I might get bad value for money. Segment numbers from 2 to 8 were studied in order to determine which solution renders the most stable segments, where stability was defined as the repeated assignment of pairs of respondents to the same segment<sup>38</sup>. This was found to be the case for the four-segment solution, which also resulted in very distinctive segment profiles. Despite being constructed on the basis of the above listed nine variables only, all risk items listed in the questionnaire discriminate significantly between the resulting groups, which are approximately equally large in size. The profiles are given in Figure 3 where the grey line depicts the total sample average and the black line represents the average rating of each item for the segments.

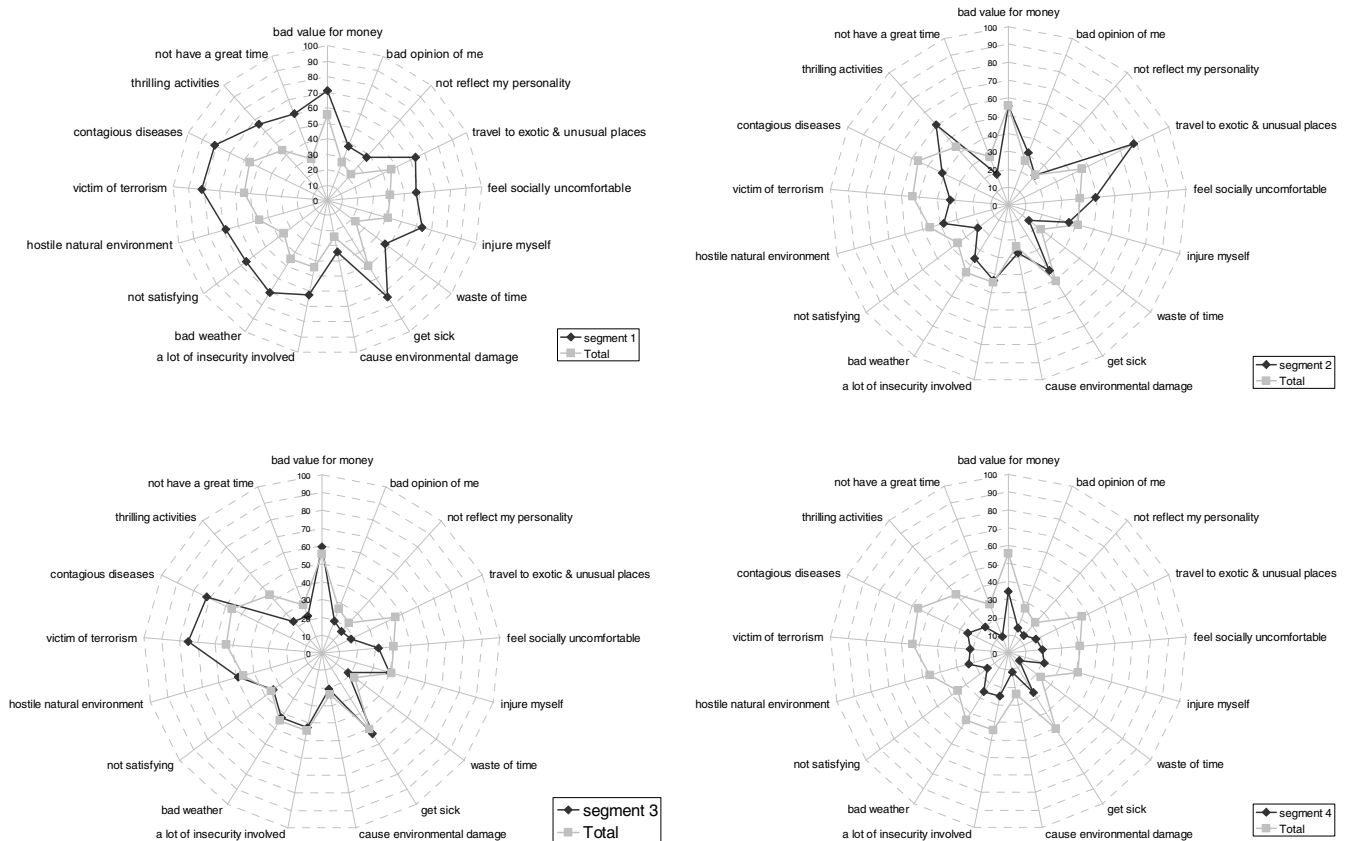


Figure 3: Segment profiles

As can be seen there are two groups, which consistently rate risk factors higher (Segment #1, *high fear segment*) than the average and lower (Segment #4, *low fear segment*), respectively. Segment #3 believes that terrorism and contagious diseases have a higher probabilities of occurrence than the other respondents, while they have more doubts about the positive uncertainties associated with the trip; travelling to exotic and unusual places and undertaking thrilling activities. This segment thus represents *overseas sceptics* who do not seem sure that the additional risk outweighs the excitements of overseas travel. The contrary is true for Segment #2. These travellers, *thrill seekers*, give the opposite ratings on these same variables. The overseas risk items are evaluated as less probable to occur, the social risk and general risk items are average, but the respondents rate the thrill and excitements items

high.

Segments were externally validated by investigating differences in information other than the segmentation base. One such distinct difference that should be of interest to tourism industry was the power of single risk factors to prevent certain segments from actually undertaking travel all together. 61 percent of the *high fear segments* felt that way, whereas only one third of the *no fear segment* would agree with this view. The *overseas sceptics* and *thrill seekers* lie in the middle regarding this criterion with about half of their members feeling that one single reason would be enough to stop them from travelling. This findings support the fact that leisure travel related fears can be very useful in grouping tourist.

However, the results regarding fear segments are preliminary only at this point given a limitation of the sample underlying the analysis: the high level of homogeneity of the sample (all of them are students which are about the same age, have similar leisure behaviour, similar socio-demographic characteristics, etc.) limits the amount of background information that is likely to reveal significantly different profiles in a representative sample of the population.

From a managerial perspective valuable insights about the customers can be gained from this study, despite the limitation that findings cannot be generalised across the entire tourist population: tourists state a number of fears without being presented a list to choose from. Some of these fears are perceived by half of the respondents to be strong enough to actually prevent them from taking the vacation. Expressed concerns vary for different contexts or destinations. Distinctly different perceived risks emerge when asked in the context of domestic or overseas travel. From the managerial perspective, this insight can help tourism authorities or tourism industry managers to select the optimal communication messages to ease the concerns tourist might have. Based on the present study it can be assumed that such communication messages can be optimised with regard to the context as well as the tourist segment communicated with.

## **Conclusions**

Three major conclusions can be drawn from this study.

First of all, it highlights the need for more market-driven research in the area of perceived risk in tourism to identify the specific travel related risks that influence the decision making process of tourists. Among the categories that resulted from questioning adults Australians in the process of information search for their next trip, all of them are reflected in only two of the typically used seven perceived risk categories: equipment risk and physical risk. The sample of young travellers revealed a wider variety of concerns, thus covering most of the standard categories. However, the majority of statements lies within the area of physical risk indicating that this category is highly multi-faceted and cannot be subsumed under a single heading or measured by a single item. The lesson to be learnt from this is that standard risk inventories might not be the best starting point for perceived risk studies in the context of tourism research. More market-driven insight into the nature of tourists' fears and the precise components thereof is required.

Second, the importance of taking heterogeneity of tourist concerns into consideration has been illustrated, supporting the findings of Roehl and Fesenmaier in 1992, however extended by using the tourist fears directly as segmentation base and using market-driven concerns rather than items representing risk categories in general consumer behaviour.

Finally, the two reported empirical studies provide a rich list of actual risks tourists perceive in different contexts. It can be concluded that tourists in the 21<sup>st</sup> century overwhelmingly express safety-

related concerns, especially in the context of overseas travel. A gap of fear perceptions between the contexts of domestic and overseas travel exists and the assumption could be expressed that this gap might be increasing as long as global negative events do not occur in Australia, offering an excellent marketing opportunity for domestic tourism.

While this study represents a first step into market-driven analysis of specific tourist fears in tourism, replications and extensions are required for different countries of origin and travel contexts. Further segmentation studies should be conducted, especially in view of gaining more insight about travel behaviour and the association of travel behaviour and fear segments.

### References

- (1) Bauer, R. A. (1960). Consumer Behaviour as Risk Taking. In R. S. Hancock (Ed.), *Dynamic Marketing for a Changing World* (pp. 389-398). Chicago: American Marketing Association.
- (2) Cunningham, S. M. (1967). The Major Dimensions of Perceived Risk. In D. F. Cox (Ed.), *Risk Taking and Information handling in Consumer Behavior* (pp. 82-108). Harvard: Graduate School of Business Administration, Harvard University.
- (3) Brown, T. L. & Gentry, J.W. (1975). Analysis of Risk and Risk Reduction Strategies - A Multiple Product Case. *Journal of Academy of Marketing Science*, Vol. 3, No. 2, pp. 148 - 160.
- (4) Peter, J. P. & Ryan, M. J. (1976). An Investigation of Perceived Risk at the Brand Level. *Journal of Marketing Research*, Vol. 13, No. 4, p. 184-188.
- (5) Bettman, J. R. (1972). *Perceived Risk: a Measurement Methodology and Preliminary Findings*. Paper presented at the Proceedings of the 3rd Annual Conference of the Association for Consumer Research.
- (6) Sonmez, S. F. & Graefe, A. R. (1998). Determining future travel behavior from past travel experience and perceptions of risk and safety. *Journal of Travel Research*, Vol. 37, No. 2, p. 171-177.
- (7) Roehl, W. S. & Fesenmaier, D. R. (1992). Risk Perceptions and Pleasure Travel: An Exploratory Analysis. *Journal of Travel Research*, Vol. 30, No. 4, p. 17-26.
- (8) Cronbach, L. J. (1950). Further evidence on response sets and test design. *Educational and Psychological Measurement*, Vol. 10, Issue 1, pp. 3-31.
- (9) Dolničar, S. (2002). Review of Data-Driven Market Segmentation in Tourism. *Journal of Travel & Tourism Marketing*, Vol. 12, No. 1, pp. 1-22.
- (10) Cossens, J., & Gin, S. (1994). Tourism and AIDS: The Perceived Risk of HIV Infection on Destination Choice. *Journal of Travel & Tourism Marketing*, Vol. 3, No. 4, pp. 1-20.
- (11) Demos, E. (1992). Concern for safety: A potential problem in the tourist industry. *Journal of Travel & Tourism Marketing*, Vol. 1, No. 1, pp. 81-88.
- (12) Pinhey, T. K. & Iverson, T. J. (1994). Safety Concerns of Japanese Visitors to Guam. *Journal of Travel & Tourism Marketing*, Vol. 3, No. 2, pp. 87-94.
- (13) Richter, L.K. & Waugh, W.L. (1986). Terrorism and tourism as logical companions. *Tourism Management*, Vol. 7, No. 3, pp. 230-238.
- (14) Sonmez, S.F, Apostolopoulos, Y. & Tarlow, P. (1999). Tourism in crisis: Managing the effects

of terrorism. *Journal of Travel Research*, Vol. 38, No. 1, p. 13-18.

- (15) Wahab, S. (1995). "Terrorism - A Challenge to Tourism," in *Security and Risks in Travel and Tourism*, Proceedings of the Talk at the Top Conference. Ostersund, Sweden: Mid-Sweden University.
- (16) Wahab, S. (1995). "Terrorism-A Challenge to Tourism." In *Security and Risks in Travel and Tourism*, Proceedings of the Talk at the Top Conference, Ostersund, Sweden: Mid-Sweden University, pp. 84-108. (1996). "Tourism and Terrorism: Synthesis of the Problem with Emphasis on Egypt." In *Tourism, Crime and International Security Issues*, edited by A. Pizam and Y. Mansfeld. New York: John Wiley, pp.175-86.
- (17) Carpenter, G. & Priest, S. (1989). The adventure experience paradigm and non-outdoor leisure pursuits. *LeisureStudies*, Vol. 8, No. 1, pp. 65-75.
- (18) Celsi, R. L., Rose, R. L. & Leigh, T. W. (1993). An exploration of high-risk leisure consumption through skydiving. *Journal of Consumer Research*, Vol. 20, No. 1, p. 1-23.
- (19) Celsi, R. L., Rose, R.L. & Leigh, T.W. (1992). Transcendent Benefits of High-Risk Sports. *Advances in Consumer Research*, Vol. 19, pp. 636-641.
- (20) Dickson, T. J. (2001). Calculating Risks: Fine's Mathematical Formula 30 Years Later. *Australian Journal of Outdoor Education*, Vol. 6, No. 1, pp. 31-39.
- (21) Dickson, T. J., Chapman, J. & Hurrell, M. (2000). Risk in Outdoor Activities: The perception, the appeal, the reality. *Australian Journal of Outdoor Education*, Vol. 4, No. 2, pp. 10-17.
- (22) Dolničar, S. & Dickson, T. (2004). No risk, no fun - The role of perceived risk in adventure tourism. *CD Proceedings of the 13<sup>th</sup> International Research Conference of the Council for Australian University Tourism and Hospitality Education (CAUTHE)*.
- (23) Walle, A.H. (1997). Pursuing Risk or Insight - Marketing Adventures. *Annals of Tourism Research*, Vol. 24, No. 2, pp. 265-282.
- (24) Zuckerman, M., Kolin, E.A., Price, L. & Zoob, I. (1964) Development of a sensation-seeking scale. *Journal of Consulting Psychology*, Vol. 28, No. 6, pp. 477-482.
- (25) Zuckerman, M. (1983). Sensation Seeking and Sports. *Personality and Individual Differences*, Vol. 4, No. 3, pp. 285-293.
- (26) Cheron, E. J. & Ritchie J. R. B. (1982). Leisure Activities and Perceived Risk. *Journal of Leisure Research*, Vol. 14No. 2, 139 -154.
- (27) Bouter, L. M., Knipschild, P.G., Feij, J.A. & Volovics, A. (1988). Sensation Seeking and Injury Risk in Downhill Skiing. *Personality and Individual Differences*, Vol. 9, No. 3, pp. 667-673.
- (28) Cronin, C. (1991). Sensation Seeking among Mountain Climbers. *Personality and Individual Differences*, Vol. 12, No. 6, pp. 653-654.
- (29) Ewert, A. W. (1994). Playing the Edge: Motivation and Risk-Taking in a High-Altitude Wildernesslike Environment. *Environment & Behavior*, Vol. 26, No. 1, pp. 3-22.
- (30) Galloway, G., & Lopez, K. (1999). Sensation seeking and attitudes to aspects of national parks: a preliminary empirical investigation. *Tourism Management*, Vol. 20, No. 6, 665-671.
- (31) Gilchrist, H., Povey, R., Dickinson, A. & Povey, R. (1995). The Sensation Seeking Scale: It's Use in a Study of the Characteristics of People Choosing 'Adventure Holidays'. *Personality and*

*Individual Differences, Vol. 19, No. 4, pp. 513-516.*

- (32) Rowland, G. L., Franken, R. E. & Harrison, K. (1986). Sensation seeking and participation in sporting activities. *Journal of Sport Psychology, Vol. 8, Issue 3, pp. 212-220.*
- (33) Pizam, A., Reichel, A. & Uriely, N. (2002). Sensation Seeking and Tourist Behavior. *Journal of Hospitality and Leisure Marketing, Vol. 9, No. 2, pp. 17-33.*
- (34) Pizam, A., Jeong, G.-H., Reichel, A. & Boemmel, H. (2004). The Relationship Between Risk-taking, Sensation -Seeking, and the Tourist Behavior of Young Adults: A Cross-Cultural Study. *Journal of Travel Research, Vol. 42, No. 3, p. 251-260.*
- (35) Formann, A. K. (1984). *Die Latent-Class-Analyse: Einführung in die Theorie und Anwendung.* Vienna: Universitaet Wien.
- (36) Arabie, P. & Hubert, L. (1994). Cluster Analysis in Marketing Research. In R. Bagozzi (Ed.), *Advanced methods of marketing research* (pp. 160-189). Cambridge: Blackwell.
- (37) Dolnicar, S. (2002). *A Review of Unquestioned Standards in using Cluster Analysis for Data-driven Market Segmentation.* ANZMAC CD proceedings.
- (38) Dolnicar, S. (2003). Using Cluster Analysis for Market Segmentation - Typical Misconceptions, Established Methodological Weaknesses and Some Recommendations for Improvement. *Australasian Journal of Market Research, Vol. 11, No. 2, pp. 5-12.*
- (39) Martinetz, T., & Schulten, K. (1994). Topology Representing Networks. *Neural Networks, Vol. 7, No. 5, pp. 507-522.*
- (40) Baumann, R. (2000). *Marktsegmentierung in den Sozial- und Wirtschaftswissenschaften: eine Metaanalyse der Zielsetzungen und Zugänge.* Vienna University of Economics and Business Administration, Vienna.
- (41) Everitt, B. S., Landau, S. & Leese, M. (2001). *Cluster Analysis* (4 ed.). London: Arnold.
- (42) Buchta, C., Dimitriadou, E., Dolnicar, S., Leisch, F. & Weingessel, A. (1998). *A Comparison of Several Cluster Algorithms on Artificial Binary Data Scenarios from Travel Market Segmentation* (Working Paper No. 7). Vienna: Adaptive Information Systems and Modelling in Economics and Management Science, Vienna University of Economics and Business Administration.
- (43) Dolnicar, S., Grabler, K. & Mazanec, J. (2000). A Tale of Three Cities: Perceptual Charting for Analysing Destination Images. In A. G. Woodside, G. I. Crouch, J. A. Mazanec, M. Oppermann & M. Y. Sakai (Eds.), *Consumer Psychology of Tourism, Hospitality and Leisure* (pp. 39-62). Wallingford: CABI International.
- (44) Thorndike, R.L. (1953) Who Belongs in the Family? *Psychometrika, Vol. 18, pp. 267-276.*
- (45) Milligan, G. W. & Cooper, M.C. (1985). An Examination of Procedures for Determining the Number of Clusters in Data Sets. *Psychometrika, Vol. 50, No. 2, pp. 159-179.*
- (46) Milligan, G.W. (1981). A Monte Carlo Study of Thirty Internal Criterion Measures for Cluster Analysis. *Psychometrika, Vol. 46, No. 2, pp. 187-199.*
- (47) Dimitriadou, E., Dolničar, S. & A. Weingessel (2002). An Examination of Indexes for Determining the Number of Clusters in Binary Data Sets. *Psychometrika, 67:137-160.*